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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LU, FRANK WEI MIN	
ART UNIT	**PAPER NUMBER**
1634	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/934,680	MCBRANCH ET AL.	
	Examiner	Art Unit	
	Frank W Lu	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-22,25 and 26* is/are pending in the application.

4a) Of the above claim(s) *14-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-13,22,25 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/23/2001 (original)* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

CONTINUED EXAMINATION UNDER 37 CFR 1.114 AFTER FINAL REJECTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission of RCE and the amendment filed on August 23, 2005 have been entered. The claims pending in this application are claims 1, 3-22, 25, and 26 wherein claims 14-21 have been withdrawn due to restriction requirement. Rejection and/or objection not reiterated from the previous office action are hereby withdrawn in view of amendment filed on August 23, 2005.

Claim Objections

2. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim because claim 1 contains the limitation "said fluorescent moiety comprises a plurality of fluorescers attached to a conjugated backbone or part of a conjugated backbone" recited in claim 6 (see lines 8 and 9 of claim 1). Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 3-8, 12, 13, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heller (US Patent No. 5,849,489, published on December 15, 1998) in view of Coull *et al.,* (US Patent No. 6,355,421 B1, filed on October 27, 1998).

Regarding claim 1, as shown in Figures 2A, Heller teaches a complex formed by a single DNA polynucleotide strand with multiple donors groups (D) and a single acceptor group (A) and a template DNA oligomer (e.g., see Figure 2A and column 6, lines 20-23). Since the single DNA polynucleotide strand taught by Heller includes a 5' portion having multiple fluorescence donors (e.g., see attached Figure 2A with the examiner's handwritings in this office action and column 11, lines 23-39), Heller discloses a fluorescent moiety comprising a plurality of fluorescers (ie., 5' portion of the single DNA polynucleotide strand having multiple fluorescence

donors) recited in the claim. Since the fluorescent polymer in the single DNA polynucleotide strand taught by Heller connects with a first tethering element which connects with a recognition element and a target nucleic acid (ie., template DNA) (see attached Figure 2A with the examiner's handwritings in this office action), Heller discloses a recognition element which binds to a target nucleic acid wherein the recognition element is bonded to the fluorescent polymer by a first tethering element as recited in the claim. Since the single DNA polynucleotide strand taught by Heller includes a 3' portion having a fluorescence acceptor that connects with a second tethering element (e.g., see attached Figure 2A with the examiner's handwritings in this office action and column 11, lines 25-39), the 3' portion having a fluorescence acceptor in the single DNA polynucleotide strand taught by Heller is a property altering element and Heller discloses a property altering element bonded to the recognition element by a second tethering element as recited in the claim. Since the single DNA polynucleotide strand taught by Heller attaches multiple donors and an acceptor (e.g., see attached Figure 2A with the examiner's handwritings in this office action) and the bases of the single DNA polynucleotide strand taught by Heller are connected by 3', 5'-phosphodiester bonds, Heller teaches a plurality of fluorescers attached to a conjugated backbone (ie., the single DNA polynucleotide strand) as recited in the claim. Since Heller teaches that the single DNA polynucleotide strand attached multiple donors and an acceptor is used to hybridize with a target nucleic acid and the presence of photonic energy emitted from the excited acceptor chromophore is used to detect the presence of the target nucleic acid (see column 18, lines 32-67 and column 19, lines 1-46), the fluorescence emitted by the fluorescent moiety must be different from that emitted when the recognition element does not bind to the single DNA polynucleotide strand attached multiple donors and an acceptor to the

target nucleic acid. Thus Heller discloses that, in the presence of binding of the recognition element to a target nucleic acid, the fluorescence emitted by the fluorescent moiety is altered from that emitted when binding between the recognition element and the target nucleic acid does not occur as recited in the claim.

Regarding claim 4, since Heller teaches that the property altering element is the 3' portion having a fluorescence acceptor in the single DNA polynucleotide strand (see attached Figure 2A with the examiner's handwritings in this office action), Heller discloses that said property altering element is selected from the group consisting of methyl viologen, quinones, metal complexes, fluorescent dyes, nonfluorescent dyes and energy accepting, electron accepting and electron donating moiety as recited in claim 4.

Regarding claim 5, as shown in the rejection on claim 1, since the fluorescence polymer (ie., the 5' portion having a fluorescence acceptor in the single DNA polynucleotide strand taught by Heller in Figure 2A) connects with the recognition element by the first tethering element while the property altering element (ie., a 3' portion having multiple fluorescence donors in the single DNA polynucleotide strand taught by Heller in Figure 2A) connects with the recognition element by the second tethering element (see attached Figure 2A with the examiner's handwritings in this office action), the first tethering element or second tethering element can be a single phosphodiester bond that is used to connect two adjacent nucleotides of the single DNA polynucleotide strand taught by Heller in Figure 2A. Therefore, Heller discloses that said first and second tethering elements are selected from the group consisting of a single bond (ie., a single phosphodiester bond), a single divalent atom, a divalent chemical moiety of up to 10 carbon atoms in length and a multivalent chemical moiety as recited in claim 5.

Regarding claims 6-8, since Heller teaches that at least two identical donors chromophores are attached to 5' portion of the single DNA polynucleotide by linker arms (e.g., see attached Figure 2A with the examiner's handwritings in this office action, lines 59-65 of column 4, and ID2 in top of column 23) wherein the linker arms are linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite (e.g., see column 14, lines 55-67), Heller discloses that said fluorescent moiety (ie., the 5' portion having a fluorescence acceptor in the single DNA polynucleotide strand taught by Heller in Figure 2A) comprises a plurality of fluorescers attached to a conjugated backbone (ie., the single DNA polynucleotide strand) as recited in claim 6. Since Heller teaches that at least two identical donors chromophores are attached to 5' portion of the single DNA polynucleotide by linker arms (see attached Figure 2A with the examiner's handwritings in this office action), Heller discloses that said fluorescent moiety (ie., 5' portion having multiple fluorescence donors in the single DNA polynucleotide in Figure 2A) comprises repeat units (ie., donor chromophores plus linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite) each containing a fluorescent dye pendant on a backbone moiety (ie., a base in 5' portion of the single DNA polynucleotide in Figure 2A) as recited in claim 8. Since the fluorescent polymer (ie., 5' portion having multiple fluorescence donors in the single DNA polynucleotide in Figure 2A) comprises a nucleic acid, which carries negative charges and comprising a plurality of conjugated bases, Heller discloses that said fluorescent polymer is an anionic conjugated polymer as recited in claim 7.

Regarding claims 12 and 13, since Heller teaches that a single DNA polynucleotide strand with multiple donors groups (D) and a single acceptor group (A) is covalently or

noncovalently linked to a solid support such as an organic polymer (see column 8, first paragraph), Heller discloses that said fluorescent moiety (ie., a 5' portion having multiple fluorescence donors in the single DNA polynucleotide strand taught by Heller in Figure 2A) is affixed to a support as recited in claim 12 wherein said support is selected from the group consisting of a fiber optic, a flexible plastic substrate, porous beads, solid beads, organic polymers, natural clays, synthetic clays particles, membranes, microporous gels and silica as recited in claim 13.

Regarding claims 24 and 25, since the phrase "wherein the fluorescent moiety comprises a J-aggregate of a plurality of fluorescer molecules" is an optional phrase in claim 1 and claims 24 and 25 are used to further limit the J-aggregate of a plurality of fluorescer molecules in claim 1, claims 24 and 25 are anticipated by Heller.

Heller does not disclose that said recognition element is a sequence of peptide nucleic acids as recited in claim 1 wherein said sequence of peptide nucleic acids is a base sequence complementary to a member selected from the group consisting of a sequence of single stranded DNA and a sequence of single stranded RNA as recited in claim 3.

Coull *et al.,* teach methods, kits, and compositions pertaining to PNA molecular beacons.

Regarding claims 1 and 3, Coull *et al.,* teach that peptide nucleic acid (PNA) hybridizes to DNA or RNA with sequence specificity (see column 5, lines 31-46) and stability of the PNA/nucleic acid complex is higher than that of an analogous DNA/DNA or RNA/DNA complex (see column 6, last paragraph). Therefore, Coull *et al.,* disclose a sequence of peptide nucleic acids is a base sequence complementary to a member selected from the group consisting

of a sequence of single stranded DNA and a sequence of single stranded RNA as recited in claim 3.

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have made a chemical moiety comprising a recognition element as recited in claim 1 wherein said recognition element is a sequence of peptide nucleic acids (PNA) in view of the patents of Heller and Coull *et al.*. One having ordinary skill in the art would have been motivated to do so because incorporation of PNA into the recognition element of the chemical moiety recited in claim 1 would enhance stability of the chemical moiety recited in claim 1 and increase half-life of the chemical moiety recited in claim 1 (see Coull *et al.*, column 5, last paragraph) since PNA is not sensitive to nuclease digestion (see Coull *et al.*, column 4, second paragraph), and would enhance to form a more stable complex between the recognition element of the chemical moiety recited in claim 1 and a target nucleic acid (see Coull *et al.*, column 6, last paragraph). One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to make a chemical moiety comprising a recognition element having a PNA sequence as recited in claim 1.

Response to Arguments

In page 7, fourth paragraph bridging to page 9, first paragraph of applicant's remarks, applicant argues that: (1) one reviewing Heller's disclosure in column 7, lines 47-52 bridging to column 8, lines 1-9 "would not be motivated to use anything other than DNA or RNA for a recognition portion. One reviewing Heller's disclosure would not be motivated to either use peptide nucleic acids or substitute them for Heller's DNA or RNA, in sharp contrast to what is asserted by the Office"; (2) "[C]oull does not disclose or suggest that peptide nucleic acids are

equivalent to DNA or could be substituted for DNA. Coull does not provide any motivation to substitute Heller's DNA. Indeed, Coull highlights the differences between peptide nucleic acids and other nucleic acids"; and (3) in contrast to the position advanced by the Office, one reviewing the passages in column 6, lines 1-13, 25, 26, 52, and 53, "[C]oull would not led to the conclusion that the nucleic acids of Heller could be easily or reliably substituted by peptide nucleic acids. It is more likely that one of ordinary skill, having reviewed the above passages in Coull, would look upon such substitution with skepticism. This, combined with the complete lack of any motivation in Heller, would not lead one of ordinary skill to the present claims. If anything, the combined teachings of Heller and Coull would result in confusion, not the subject matter as claimed. Accordingly, the claimed subject matter is not obvious over Heller and Coull alone or in combination".

These arguments have been fully considered but they are not persuasive toward the withdrawal of the rejection. First, although Heller does not teach to use peptide nucleic acid, he teaches that nucleic acid can be a modified nucleic acid having modifiable backbone structure to produce different properties (example; normally negatively charged DNA can be made in a neutral form) and it is know that peptide nucleic acid is a modified nucleic acid in a neutral form (see Coull *et al.,* column 6). Thus one reviewing Heller's disclosure would be motivated to use a modified nucleic acid that has modifiable backbone structure and is in a neutral form. Second, although applicant argues that biological, structural, and physico-chemical differences between PNA probes and standard nucleic acid probes may lead to unpredictable results when attempting to use PNA probes in applications were nucleic acids have typically been employed (see page 8 of applicant's remarks), applicant does not provide an evidence to show why a chemical moiety

comprising a sequence of peptide nucleic acid is unpredictable. According to applicant's philosophy, the function of peptide nucleic acid is unpredictable. However, it is not a case here because the function of peptide nucleic acid is well known in the art (see the patent from Coull *et al.,*). Third, Coull *et al.,* have provided motivation for incorporation of PNA into the recognition element of the chemical moiety recited in claim 1. As shown in above office action, the examiner clearly indicate that "incorporation of PNA into the recognition element of the chemical moiety recited in claim 1 would enhance stability of the chemical moiety recited in claim 1 and increase half-life of the chemical moiety recited in claim 1 (see Coull *et al.,* column 5, last paragraph) since PNA is not sensitive to nuclease digestion (see Coull *et al.,* column 4, second paragraph), and would enhance to form a more stable complex between the recognition element of the chemical moiety recited in claim 1 and a target nucleic acid (see Coull *et al.,* column 6, last paragraph)".

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller in view of Coull *et al.,* as applied to claims 1, 3-8, 12, 13, 24, and 25 above.

The teachings of Heller and Coull *et al.,* have been summarized previously, *supra.* Although Heller and Coull *et al.,* do not teach that the number of repeat units is greater than or equal to 33 as recited in claim 9, Heller disclose that the fluorescent polymer (ie., 5' portion having multiple fluorescence donors in the single DNA polynucleotide in Figure 2A) comprises at least two repeat units (ie., donor chromophores plus linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite) (see column 4, lines 59-67, and column 14, lines 55-67) and about 10 donors are incorporated in a

single oligonucleotide sequence of 50 nucleotides (see column 13, lines 45-67) (ie., 10 donor chromophores plus 10 linker arm nucleosides).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have made a fluorescent polymer comprising repeat units (ie., donor chromophores plus linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite) as recited in claim 9 wherein the number of repeat units is greater than or equal to 33 in view of the patents of Heller and Coull *et al.*. One having ordinary skill in the art has been motivated to do so because optimization of the number of repeat units (ie., donors chromophores plus linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite) in the fluorescent polymer (ie., see Figure 2A with the examiner's handwritings in this office action) of the chemical moiety recited in claim 8 would have been obvious to one having ordinary skill in the art at the time the invention was made. One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to optimize the number of repeat units (ie., donors chromophores plus linker arm nucleosides such as 5'-dimethoxytrityl-5[N-(7-trifluoroacetylaminoheptyl)-2'-deoxyuridine 3'-O-phosphoramidite) in the fluorescent polymer (ie., see Figure 2A with the examiner's handwritings in this office action) of the chemical moiety recited in claim 8 during the process of making the chemical moiety recited in claim 9. Note that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Where the general conditions of a claim are disclosed in the prior art, it is not inventive, in the absence of an unexpected result, to discover

the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller in view of Coull *et al.,* as applied to claims 1, 3-8, 12, 13, 24, and 25 above, and further in view of Chen *et al.,* (PNAS, 96, 12287-12292, October 1999).

The teachings of Heller and Coull *et al.,* have been summarized previously, *supra.*

Heller and Coull *et al.,* do not disclose that said fluorescent moiety is a J-aggregate of a plurality of fluorescer molecules as recited in claim 10.

Chen *et al.,* teach highly sensitive biological and chemical sensors based on reversible fluorescence quenching in a conjugated polymer. One of fluorescent polyanionic conjugated polymers, poly (MPS-PPV), comprising about 1000 identical monomer repeat units with fluorescences and the use of this fluorescence polymer leads to a greater than million-fold amplification of the sensitivity to fluorescence quenching relative to that of corresponding small conjugated molecules with similar structure (see page 12287).

Regarding claim 10, although the specification describes that J-aggregate, there is no definition for "J-aggregate" in the specification. Since MPS-PPV becomes an aggregate in the presence of divalent cations (see page 12289, right column), which is a J shape (see Figure 2A, right drawing), in a broad and reasonable interpretation, MPS-PPV is a fluorescent monomer that can form a J-aggregate of a plurality of fluorescer molecules (ie., MPS-PPV) as recited in claim 10.

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have made a chemical moiety comprising a fluorescent moiety wherein said fluorescent moiety is a J-aggregate of a plurality of fluorescer molecules (ie., MPS-PPV) as recited in claim 10 in view of the prior art of Heller, Coull *et al.*, and Chen *et al.*. One having ordinary skill in the art would have been motivated to do so because the use of the fluorescence moiety taught by Chen *et al.*, would lead to a greater than million-fold amplification of the sensitivity to fluorescence quenching relative to that of corresponding small conjugated molecules with similar structure (see Chen *et al.*, page 12287). One having ordinary skill in the art at the time the invention was made would have been a reasonable expectation of success to make a chemical moiety comprising a fluorescent moiety wherein said fluorescent moiety is a J-aggregate of a plurality of fluorescer molecules (ie., MPS-PPV) as recited in claim 10 since Chen *et al.*, have successfully made or used a fluorescent moiety as recited in claim 10.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller in view of Coull *et al.*, as applied to claims 1, 3-8, 12, 13, 24, and 25 above, and further in view Woodrum (US Patent No. 4,959,305, published on September 25, 1990).

The teachings of Heller and Coull *et al.*, have been summarized previously, *supra.*

Heller and Coull *et al.*, do not disclose that said fluorescent dye is a negative charged dye chromophore as recited in claim 11. However, since Heller teaches that donors chromophores attached to 5' portion of the single DNA polynucleotide in Figure 2A (see Figure 2A) can be fluorescein (see column 11, lines 23-39) and it is known that fluorescein carries a negative

charge (see Woodrum, column 11, lines 41-46), the fluorescent dye taught by Heller is a negative charged dye chromophore as recited in claim 11.

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have made a chemical moiety comprising a fluorescent moiety as recited in claim 11 wherein said fluorescent dye is a negative charged dye chromophore in view of the patents of Heller, Coull *et al.*, and Woodrum. One having ordinary skill in the art would have been motivated to consider the fluorescent dye taught by Heller as a negative charged dye chromophore after reviewing the teachings from the patent of Woodrum because that it is known that fluorescein carries a negative charge (see Woodrum, column 11, lines 41-46).

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heller in view of Coull *et al.*, as applied to claims 1, 3-8, 12, 13, 24, and 25 above, and further in view of Chick *et al.*, (US Patent No. 5,342,789, published on August 30, 1994).

The teachings of Heller and Coull *et al.*, have been summarized previously, *supra.*

Heller and Coull *et al.*, do not disclose that the property altering element is non fluorescent as recited in claim 22.

Chick *et al.*, teach that an acceptor used for fluorescent energy transfer can be either fluorescent or non-fluorescent (see column 2).

Therefore, it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to have made a chemical moiety comprising a fluorescent moiety recited in claim 22 wherein the property altering element is non-fluorescent as recited in

claims 22 in view of the patents of Heller, Coull *et al.,* and Chick *et al.*. One having ordinary skill in the art would have been motivated to do so because Chick *et al.,* suggest that an acceptor used for fluorescent energy transfer is either fluorescent or non-fluorescent (see column 2) and the simple replacement of one kind of acceptor (ie., a fluorescent acceptor taught by Heller) from another kind of acceptor (ie., a non-fluorescent acceptor taught by Chick *et al.,*) during the process of labeling a chemical moiety recited in claim 22 so that the property altering element is non-fluorescent (ie., with an non-fluorescent acceptor), would have been, in the absence of convincing evidence to the contrary, *prima facie* obvious to one having ordinary skill in the art at the time the invention was made because the acceptor taught by Heller and the acceptor taught by Chick *et al.,* are used for the same purpose (ie., accepting fluorescent energy transfer from a fluorescent donor).

Furthermore, the motivation to make the substitution cited above arises from the expectation that the prior art elements will perform their expected functions to achieve their expected results when combined for their common known purpose. Support for making the obviousness rejection comes from the M.P.E.P. at 2144.06, 2144.07, and 2144.09.

Also note that there is no invention involved in combining old elements is such a manner that these elements perform in combination the same function as set forth in the prior art without giving unobvious or unexpected results. *In re Rose* 220 F.2d. 459, 105 USPQ 237 (CCPA 1955).

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1, 3-6, 8-13, and 26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of US Patent No. 6,743, 640B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because the examined claims in this instant application is either anticipated by, or would have been obvious over, the reference claims. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969). Although claims 1, 3-6, 8-12, and 26 in this instant application are not identical to claims 1-18 of US Patent No. 6,743, 640B2, claims 1-18 in US Patent No. 6,743, 640B2 are directed to the same subject matter and fall entirely within the scope of claims 1, 3-6, 8-12, and 26 in this instant application. In other words, claims 1, 3-6, 8-12, and 26 in this instant application are anticipated by claims 1-18 of US Patent No. 6,743,640B2. Since the support

taught by claim 9 of US Patent No. 6,743, 640B2 is a polystyrene bead (see column 18), claim 13 of this instant application is anticipated by claim 9 of US Patent No. 6,743, 640B2.

Conclusion

11. No claim is allowed.

12. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CAR § 1.6(d)). The CM Fax Center number is (571)273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Lu, Ph.D., whose telephone number is (571)272-0746. The examiner can normally be reached on Monday-Friday from 9 A.M. to 5 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (571)272-0745.

Any inquiry of a general nature or relating to the status of this application should be directed to the Chemical Matrix receptionist whose telephone number is (703) 308-0196.

Frank Lu
PSA
September 14, 2005

FRANK LU
PATENT EXAMINER